

THE DACUS SUBGENERA NEODACUS AND GYMNODACUS OF
THE WORLD(DIPTERA, TEPHRLTIDAE)¹BY D. ELMO HARDY, *University of Hawaii, Agricultural Experiment
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Dr. Alan Stone, Division of Insect Detection and Identification, U. S. Department of Agriculture, recently reported (in correspondence) that the type of *Chaetodacus bakeri* Bezzi (Genotype of *Asiadacus* Perkins) had just been discovered in the U. S. National Museum collection and that it does not fit the description of *Asiadacus* Perkins. Perkins used as his diagnostic character for *Asiadacus* the absence of cilia on the third abdominal segment of the male. Bezzi's original description of *Chaetodacus bakeri* (1919, Phil. Jour. Sci. 15(5): 426-428) clearly states that the third segment has "black cilia on sides." Bezzi made an error in his key to the species of *Chaetodacus* (*op. cit.*, p. 419) and stated that the third abdominal segment of the male of *bakeri* is not ciliated; Perkins obviously repeated this error. More complete details concerning the type of *C. bakeri* have been supplied by Dr. R. H. Foote of the U. S. Department of Agriculture and it apparently fits in the subgenus *Neodacus*. *Asiadacus* is herein treated as a synonym on the bases of the congeneric genotypes. In this case much less confusion will be caused if page priority is not followed.

Perkins included *Dacus diversus* Coquillett in his *Asiadacus* and it properly fits his description in that the male has a supernumerary lobe and no cilia on the third segment. *D. diversus* is being treated under the subgenus *Gymnodacus* (see discussion under that subgenus). I am able to find significant differences which would warrant the erection of a new subgenus to contain *diversus*.

Dacus (Neodacus) Perkins

Neodacus Perkins, 1937, Proc. Roy. Soc. Queensland 58 (9):58

Asiadacus Perkins, 1937, Proc. Roy. Soc. Queensland 58 (9):57. New synonymy.

The subgenus *Neodacus* is very close to *Dacus* (*Strumeta*) Walker and differs only in the absence of prescutellar bristles, fig. 1a. This group contains the largest known species of the subfamily Dacinae. Many of them are beautifully marked and the species usually have extensive maculations of brown

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through the wings. The subgenus is known only from the Pacific and oriental regions.

Genotype: *Dacus* (*Neodacus*) *newmani* (Perkins).

KEY TO THE KNOWN SPECIES OF DACUS (NEODACUS)

1. Mesonotum with no postsutural yellow vittae.....
.....(Australia)..... *newmani* (Perkins)
- Mesonotum with at least lateral yellow vittae present..... 2
2. Wings with extensive brown markings through the central portion,
figs. 2a, 3c..... 3
- Wing with a costal band and a cubital streak, fig. 1b but with no
brown markings through the center of the wing (except for
brownish infuscation along the m crossvein in *lancoletatus*)..... 4
3. The yellow lateral vittae end before reaching the inner postalar
bristles. Wings with a hyaline streak extending longitudinally
through the middle from the base to a point in cell 1st M₂
about the lower apex of the r-m crossvein, fig. 3c.....
.....(Russell Island and Solomon Islands)..... *pepisalae* Froggatt
- The yellow lateral vittae extend to the inner postalar bristles.
No such longitudinal streak through cell 1st M₂, fig. 4..... 6
4. Humeral and notopleural calli joined by a yellow band. The m
crossvein is infuscated.....(Papua)..... *lancoletatus* (Perkins)
- Sides of thorax not yellow between the humeri and notopleural
calli. The m crossvein not infuscated..... 5
5. Wings with a broad costal band continuing to or beyond vein
R₄ + 5, fig. 5e. Mesonotum with three postsutural yellow
vittae, except in *bakeri* (Bezzi)..... 7
- Costal band interrupted, wings with a small, isolated, apical spot
at the tip of vein R₄ + 5, fig. 1b. Mesonotum with two post-
sutural vittae.....(India)..... *affinis* n. sp.
6. The r-m crossvein is situated before the middle of cell 1st M₂
(discal cell), the lower apex of the crossvein is at about the
middle of cell 1st M₂; wing pattern as in fig. 4. Length of
body 9.5 mm.....(New Guinea)..... *seguyi* (Hering)
- The r-m crossvein is situated beyond the middle of 1st M₂, the
lower apex of r-m is at about the apical two-thirds of cell 1st
M₂, fig. 2; wing maculations not as above. Length of body
11.5-12.0 mm.....(New Guinea)..... *curvifer* Walker
7. Wings with a large apical spot, fig. 5e. Face with large black
spots, fig. 5a..... 8
- Wings with no apical spot. Face with very small black spots.....
.....(Papua)..... *emarginatus* (Perkins)
8. Three postsutural yellow vittae present. Thorax chiefly reddish,
with no black markings except on the apex of the scutellum
.....(India)..... *watersi* n. sp.
- Two yellow vittae present on mesonotum. Mesonotum with
extensive black markings. Scutellum yellow except for a nar-

row stripe of black on the base.
(Philippine Islands)..... *bakeri* (Bezzi)

Dacus (Neodacus) affinis, new species

(Figs. 1a-b)

This species is very different from all known members of the subgenus *Neodacus*. It appears to be more closely related to *Dacus (Strumeta) zonatus* (Saund.) and *D. (Strumeta) paratuberculatus* (Philip) than to any known species of *Neodacus*. This provides still further evidence to support the viewpoint that the presence or absence of prescutellar bristles is not of generic importance in the *Dacus (sens. lat.) D. affinis* so closely resembles *D. zonatus* that it can be easily separated only by the absence of the prescutellar bristles. The female ovipositors would probably show distinctive characteristics but *affinis* is known only from the males. The species differs from other *Neodacus* as is stated in the above key.

Male.—A predominantly pale species devoid of conspicuous black markings. HEAD: The front is about one and one-half times longer than wide and is parallel sided. Two pairs of inferior fronto-orbital bristles and one pair of superior fronto-orbitals are present; these are black in color and are much shorter than are the genal bristles. The bristles of the head, beside those on the front and on the occipit, are yellow. The antennae are yellow to rufous, the third segment is three times longer than wide and slightly longer than the face. The basal third of the arista is yellow. The facial spots are dark brown to black and are rather small and usually oval in shape. They vary somewhat in size and shape but the vertical length of the spot is usually about equal to three-fourths or four-fifths the width of the third antennal segment. The front is entirely rufous, the hind portion of the occiput is usually discolored with brown. THORAX: All rufous or yellow except for brown to black markings on the sides of the metanotum and on the hypopleura, pteropleura and sternopleura. The scutellum also has a very narrow line of brown to black across its base, fig. 1a; it is otherwise yellow. The mesonotum is all rufous, except for the yellow lateral vittae and the humeri. The mesonotum sometimes has a pair of submedian brownish discolorations extending longitudinally about one-third to one-half its length. The bristles of the thorax are yellow to yellow-brown, they are arranged as is typical of this subgenus. LEGS: Entirely yellow to rufous, except for slight brownish discolorations on the inside edges of the middle and hind tibiae. WINGS: Almost entirely hyaline, only the stigma (third costal section), the cubital cell and a spot near the apex of the wing are distinctly yellow fumose. Cell R_2 is very slightly yellowish. The apical spot occupies a position at the end of vein $R_4 + 5$ extending along the costa from the apical third of cell R_3 through almost the top half of cell R_5 , fig. 1b. The entire basal portion of the wing, including the first two sections of the costa, the base of cell R, cell M and the posterior

lobe, is devoid of microtrichia. The r-m crossvein is slightly curved and its lower end is situated at the apical third of cell 1st M_2 . The distance from the apex of the cubital cell to the wing margin is equal to one-half the length of the narrowed portion of the cubital cell. ABDOMEN: Predominantly rufous, covered with white pubescence. The third tergum has a narrow brown to blackish band across its base. The fifth tergum has a narrow black vitta extending longitudinally down the middle. The shining spots on the sides of the fifth tergum are reddish brown. The abdomen is almost circular in shape, it is approximately as broad as long. Length: Body and wings, 5.0 mm.

Female unknown.

Types.—Holotype ♂, Yercaud, South India, taken with methyl eugenol,² June 6-8, 1950 (G. Beevor). Seventy-nine paratypes (all males): 62, same as type and 17 from Hesarghatta, S. India (probably from methyl eugenol bait trap), Feb. 22, 1950 (T. C. Lawrence).

The type and a series of paratypes are being deposited in the United States National Museum. The remainder of the paratypes are being distributed among the following Museums and Institutions: B. P. Bishop Museum, Honolulu, T. H., British Museum (Natural History); the Zoological Survey of India and the University of Hawaii.

Dacus (Neodacus) bakeri (Bezzi), new combination

Chaetodacus bakeri Bezzi, 1919. Phil. Jour. Sci. 15(5):426-428.

As was stated under the discussion of *Neodacus* the type of *Chaetodacus bakeri* was recently discovered in the United States National Museum and it fits in the subgenus *Neodacus* not in *Asiadacus* (as described by Perkins, not as defined by the genotype) as it has previously been treated. The species can be differentiated from other *Neodacus* which have the costal band of the wing expanded into a large apical spot by having the mesonotum extensively marked with black and with just two postsutural yellow vittae. Length: Body, 6.5 mm.; wings, 6.0 mm.

Type locality.—Davao, Mindanao; host unknown.

Type in the United States National Museum.

I have not seen this species; it is evidently known only from the type. The original description and figure appear to be quite adequate.

Dacus (Neodacus) curvifer Walker

(Fig. 2)

Dacus curvifer Walker, 1862, Proc. Linn. Soc. Lond. 7:229.

This appears to be very close to *D. pepisalae* Froggatt and

²This is a powerful male lure but does not attract females.

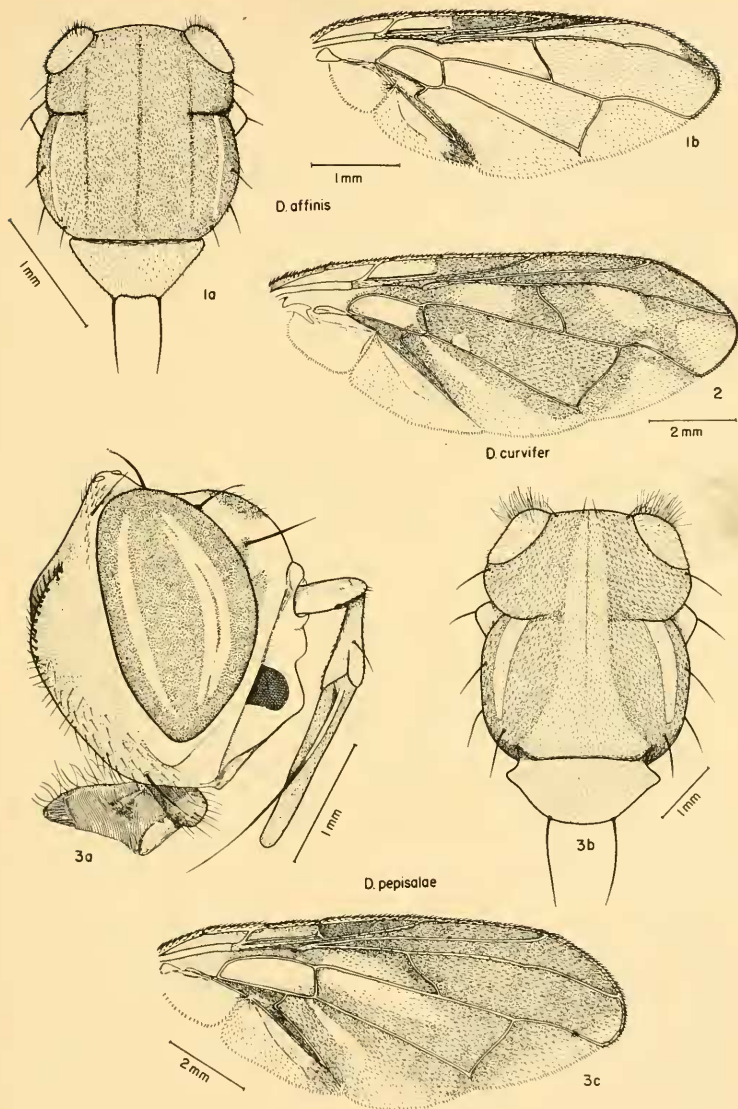


Fig. 1, *Dacus* (*Neodacus*) *affinis*, new species, a, thorax, dorsal view; b, wing of male; fig. 2, *D.* (*Neodacus*) *curvifer* Walker, wing of male; fig. 3, *D.* (*Neodacus*) *pepisalae* Froggatt, a, head, lateral view; b, thorax, dorsal view; c, wing of male. Drawings by Marian S. Adachi, Univ. of Hawaii.

apparently differs by having no hyaline streak extending longitudinally through the middle of the wing and also in the details brought out under the discussion of *D. pepisalae* Froggatt. The original description has been adequately supplemented by Perkins (1939, Univ. Queensland, Dept. Biol. Papers 1(10):21-22, fig. 1) except for the following details.

The median longitudinal hoary stripe is divided into two vittae by a very fine black line running down the middle. The postsutural yellow vittae on the mesonotum extend beyond the bases of the posterior supraalar bristles. The basal cells of the wing, including the costal and subcostal cells, are yellow fumose and are devoid (or nearly so) of microtrichia. Cell m is nearly all hyaline and has microtrichia only on the apical portion. The radial cell has a large square-shaped hyaline spot in the middle portion, this does not extend into cell 1st M_2 in the specimen at hand. Cell R_5 has a hyaline spot extending transversely from vein $R_4 + 5$ just below the middle of the cell toward the large hyaline portion of cell 2nd M_2 ; the two clear areas are connected except for two narrow streaks of brown which isolate a round clear spot on vein $M_1 - 2$. The apical portion of cell R_5 has a large hyaline spot. Cell M_4 has a hyaline streak which extends through the median portion from the wing margin to the $m-cu$ crossvein. The anal cell and the posterior lobe of the wing are hyaline, fig. 2. Length: Body 11.5-12.0 mm.; wing, 8.5-9.0 mm.

The specimen at hand had been identified (apparently by Froggatt) as *Dacus speculifer* Walker. It does not, however, fit Walker's original description. Walker's species cannot be placed to subgenus until the type is restudied.

Type locality.—Waigiu; host unknown

Type in the British Museum (Natural History).

Perkins' specimens were from New Guinea and Papua. I have seen it from Rabaul, New Guinea, 1-4-34 (J. L. Froggatt).

***Dacus (Neodacus) emarginatus* (Perkins)**

Neodacus emarginatus Perkins, 1939, Univ. Queensland, Dept. Biol. Papers. 1(10):24, pl. 1, fig. 11.

This species is related to *D. watersi* n. sp. because of the presence of three yellow vittae down the mesonotum. It is distinguished by its broad, continuous costal band, chiefly black thorax, and by the small black spots on the face. Length: Body 6.0 mm.; wings, 5.5 mm.

The species has been adequately described and figured by Perkins.

Type locality.—Mondo, Papua; no host given.

Type in the British Museum (Natural History).

***Dacus (Neodacus) lanceolatus* (Perkins)**

Neodacus lanceolatus Perkins, 1939 (June), Univ. Queensland Papers, Dept. Biol. 1(10):22-23, pl. 1, fig. 1.

Dacus (*Chaetodacus*) *albolateralis* Malloch, 1939 (Sept.), Proc. Linn. Soc. N. S. Wales. 64 (3-4):413, pl. XI, fig. 2.

This species is readily distinguished from all known members of this subgenus by having the m crossvein infuscated and by having the humeral and notopleural calli joined by a yellow band. Length: Body, 7.5 mm.; wings, 6.5 mm.

The species was adequately described by Perkins.

Type locality.—Papua; no host given.

Type in the British Museum (Natural History).

***Dacus* (*Neodacus*) *newmani* (Perkins)**

Neodacus newmani Perkins, 1937, Proc. Roy. Soc. Queensland, 48(9): 58-59.

This species is distinguished from all known members of this subgenus by the lack of postsutural yellow vittae on the mesonotum. Length: Body, 6.5-7.0 mm.; wings, 4.6 mm.

The species has been adequately described by Perkins. It is known only from west Australia.

Type locality.—Garnarvon West Australia; "bred from native fruits."

Type in the Queensland Museum.

***Dacus* (*Neodacus*) *pepissalae* Froggatt, new combination**

(Figs. 3a-c)

Dacus pepissalae Froggatt, 1911, Proc. Linn. Soc. N. S. Wales, 35:869.

This species is very closely related to *Dacus* (*Neodacus*) *curvifer* Walker. From Walker's description of *curvifer*, as supplemented by Perkins, 1939, Univ. Queensland, Dept. Biol. Papers 1(10):21-22, fig. 13, *D. pepissalae* appears to differ in the following ways: terga three to five are blue-black in color, not "dark mottled brown"; the yellow lateral vittae end well before the inner posterior supraalar bristles, not extending to the bristles as in *curvifer*; the upper three-fifths of cell 1st M_2 and the lower one-third to one-fourth of cell R_5 are occupied by a hyaline streak extending from the base of vein $M_3 + 4$ to a point about opposite the r-m crossvein, not extensively brown, with not more than a small hyaline spot near base of 1st M_2 as in *curvifer*; cell 2nd M_2 is all brown except for the narrow apical portion, fig. 3c, not all hyaline, except for the basal edge along the m crossvein as in Perkins' figure of *curvifer*. The r-m crossvein is also strongly curved in the specimen of *pepissalae* on hand, it is straight in Perkins' figure of *curvifer* but is curved in the specimen which I have, fig. 2. Perkins (op. cit., 6) places the species in the genus (subgenus according to my concept) *Strumeta* "on the assumption that the male has a supernumerary lobe in the wing and the third abdominal tergite ciliated." The species at hand fits in the subgenus *Neodacus* because of the lack of the prescutellar bristles. Length: Body 12.0 mm.; wings, 10.0 mm.

This species is distinguished from other members of this

subgenus by the hyaline streak which extends through the middle of the wing, fig. 3c, the sinuate r-m crossvein and by the abbreviated yellow vittae on the sides of the mesonotum, fig. 3b. The occiput is about two-thirds as broad as the compound eyes and the third antennal segment is equal in length to the face, fig. 3a. Malloch's description, 1939, Ann. Mag. Nat. Hist. 4(11):242-243, pl. x, fig. 8, is adequate for this species.

Type locality.—Russell Island; host unknown.

Type in British Museum (Natural History).

Malloch recorded the species from Tulaga, Solomon Islands. I have seen it from Vella Lavella, Brit. Sol. Isls., X-12 to 20-1943 (P. D. Hurd).

Dacus (Neodacus) séguyi (Hering)

(Fig. 4)

Strumeta (Bactrocera) seguyi Hering, 1939 [April], Verh. VII. Internat. Kongr. Entom. 1:165, f. 1.

Dacus peculiaris Malloch, 1939 [August], Ann. Mag. Nat. Hist. 4(11): 235, pl. X, f. 3.

This species apparently differs from *D. curvifer* and other related species by having the r-m crossvein situated before the middle of cell 1st M_2 ; by having a hyaline spot near the apex of cell R which extends through the basal portion of cell 1st M_2 and by having the hyaline area in cell 2nd M_2 extending through cell R_5 to vein R_{4+5} , fig. 4.³ Length: Wing, 8.5 mm.

Type locality.—Bay of Humboldt and Dorey, New Guinea; host unknown.

Type in the Paris Museum.

Dacus (Neodacus) watersi, new species

(Figs. 5a-g)

This species appears to be more closely related to *D. emarginatus* (Perkins) from New Guinea, than to any other described species. It is distinguished by having the costal band expanded into a large spot in the wing apex; by its rufous thorax, and its larger size.

This species definitely occupies a borderline position between two subgenera (genera of authors). It perhaps would be as correctly placed in *Dacus (Paradacus)* as in *Dacus (Neodacus)*. One, two, or more secondary scutellar bristles or bristle-like hairs are developed in over fifty percent of the specimens at hand but since the supplementary setae show varying degrees of development and are not so strongly de-

³Copied from Hering's figure.

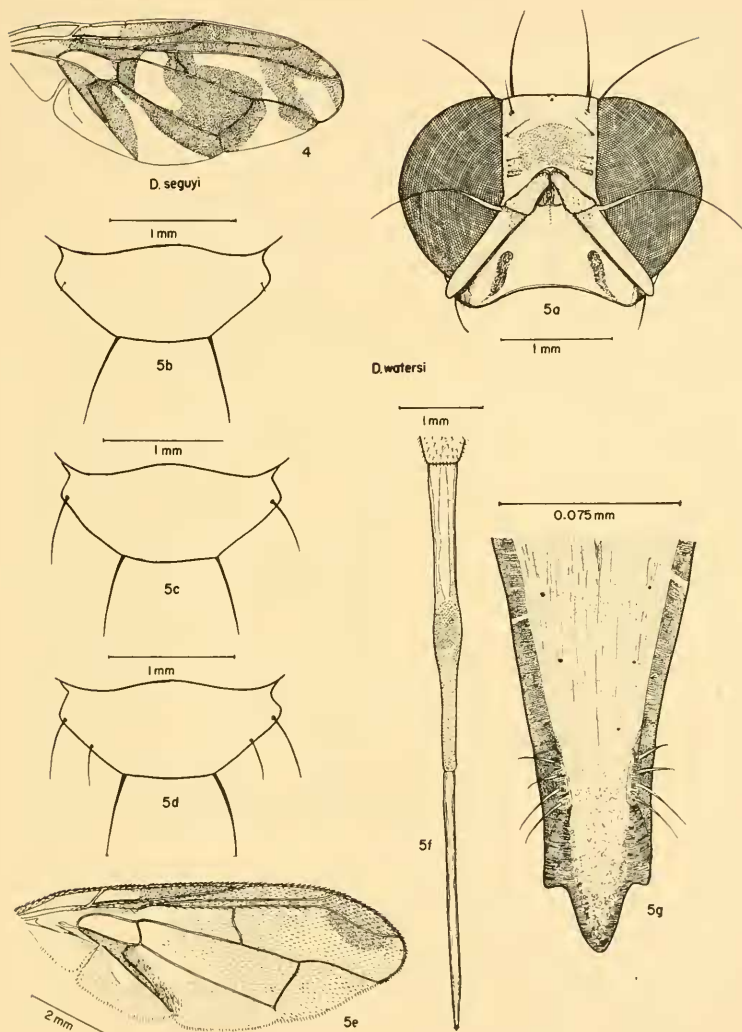


Fig. 4, *D. (Nodacus) seguyi* (Hering), wing (copied from Hering, 1939, Verh. VII. Intern. Kongr. Entom. 1:165, f. 1); fig. 5, *D. (Nodacus) watersi*, new species, a, head, front view; b, outline of scutellum showing two scutellar bristles; c, scutellum with four bristles; d, scutellum, with six bristles; e, wing of male; f, female ovipositor, showing inversion membrane and piercer; g, apex of piercer. Drawings by Marian S. Adachi.

veloped as in the *Zeugodacus* complex of subgenera it is perhaps best to consider this in the *Neodacus*. Some of the specimens which have four well developed scutellar bristles, fig. 5c would fit in *Paradacus*. Some have two strong and two weak bristles. Some have three bristles, the third may vary from moderately strong to weak. One specimen in the series possesses six scutellar bristles; the second and third pairs are rather poorly developed, fig. 5d. Some of the specimens have small humeral bristles and would thus fall into *Notodacus* as defined by some authors.

Male.—HEAD: Predominantly yellow to rufous. The front is discolored with brown to black on the gibbosity and at the bases of the bristles. The face has an elongate black spot occupying about the basal half of each antennal furrow, fig. 5a. The face often has an indistinct brown to black line extending longitudinally down the middle. The front is one and one-half times longer than wide and is almost equal in width to one eye. Three pairs of inferior fronto orbital and one pair of superior fronto-orbital bristles are present. One to two pairs each of moderately strong gular and genal bristles are present. All of the head bristles are black. The antennae, including the basal third of the arista, are yellow; the third segment is slightly discolored toward its apex. The third segment is four times longer than wide and extends to the upper margin of the epistome. THORAX: Chiefly reddish in ground color, faintly tinged with brown. The humeri possess a pair of enlarged bristle-like hairs in the position where the humeral bristles arise in *Notodacus*. These are pale, concolorous with the other setae on the humeri, in most specimens. In some specimens they are black and are nearly as well developed as in *Dacus* (*Notodacus*) *xanthodes* Brown. The humeri are yellowish to rufous, in most specimens they possess a distinct reddish or brownish tinge. The mesonotum has no black markings and has three postsutural yellow vittae. The lateral vittae extend to the inner postalar bristles. The median vitta extends from the suture about three-fifths of the distance to the scutellum. The mesopleural yellow stripe occupies the posterior half of the sclerite and its posterior and anterior margins are almost parallel. The anterior half of each mesopleuron is chiefly brownish red and is discolored by a transverse brown to black streak. The scutellum is largely reddish, the apical edge is black. The scutellar bristles are as described above and as in figures 5b, 5c, and 5d. The halteres are yellow. LEGS: The basal two-thirds of the femora are clear yellow, the apical portions are brownish red; the front femora are blackish on the outer dorsal surface. The tibiae and the apical subsegments of the tarsi are brownish yellow. The basal subsegments of the tarsi are yellow. WINGS: The first section of the costa is yellow fumose, the second is yellow around the edges and hyaline in the central portion. The first two sections are devoid of microtrichia except in the apex of the second. The costal band is yellow and occupies all of the front margin of the wing through cell R_3 from the subcostal vein to the apex. Toward

the apex the costal band expands into a large black spot which extends half way through cell R_5 , fig. 5e. The r-m crossvein is distinctly curved and is situated at or near the middle of cell 2nd M_2 . The supernumerary lobe and the cubital streak are well developed. The narrowed portion of the cubital cell is nearly three times longer than vein $Cu_1 + 1st A$. ABDOMEN: Predominantly reddish with a black band across the base of the third tergum and with a median black vitta extending longitudinally from the base of tergum three to the apex of the abdomen. The apex of the second tergum is pale yellow. Length: Body, 8.5-9.0 mm.; wings, 8.0 mm.

Female.—The cubital streak extends just slightly beyond the apex of the cubital cell and the narrowed portion of the cubital cell is but slightly longer than vein $Cu_1 + 1st A$. Otherwise the female is like the male except for sexual characters. OVIPOSITOR: The exposed portion of the ovipositor is equal or slightly longer than the combined lengths of abdominal segments three to five. The visible portion is brownish red in color. The ovipositor is very elongate and slender, when fully extended it measures 9.0-9.5 mm. The piercer is about 3.2 mm. long by .14 mm. at its widest point. The extreme apex of the piercer is strongly constricted so that a short (.025 mm. long) point is developed, fig. 5g. Four pairs of preapical setae are present, the distad pair are approximately .05 mm. from the apex of the piercer. The oviduct is situated about .26 mm. from the apex. The inversion membrane measures about 3.5 mm. long by .39 mm. at its widest point. The rasper occupies a rather narrow band at about the middle of the segment, the segment is slightly expanded at this point, fig. 5f. The margins of the rasper are situated about 1.48 mm. from the apex of the segment and about 1.4 mm. from the base. The basal segment (7th abdominal segment) is about 2.8 mm. long by 1.7 mm. at its widest point. The spiracles are about .52 mm. from the base of the segment, measured on the lateral margins. Length: Body (excluding ovipositor) and wings, 9.2-9.5 mm.

Types.—Holotype ♂, allotype ♀, and 22 paratypes 4 males, 18 females: Kodaikanal, South India, Jan. 1951, ex *Bryonia* sp. (N. Waters).

Type, allotype, and a series of paratypes are in the United States National Museum collection. Paratypes have been deposited in the following collections: B. P. Bishop Museum, Hawaiian Sugar Planters' Association, University of Hawaii.

Dacus (Gymnodacus) Munro

Dacus (Gymnodacus) Munro, 1938, Proc. Roy Soc. Lond., ser. B, Tax. 7(5):117.

This subgenus is separated from *Dacus (Strumeta)* by the absence of a row of strong cilia on each side of the third abdominal tergum. The previous concept of this group has included the lack of a supernumerary lobe in the wings of the males at the apex of vein $Cu_1 + 1st A$. The presence or absence of this lobe does not appear to be of enough importance

to warrant erecting a new subgenus to contain *D. diversus* Coquillett. The genotype, *D. mesomelas* Bezzi, has no indication of this lobe; *D. absonus* (Hering) shows but a slight indication of it; the lobe is poorly developed in *D. calophylli* (Perkins and May) and in *hastigerinus* n. sp. and is well developed in *D. diversus* Coquillett.

This subgenus is known from the Pacific, Oriental, and Ethiopian regions.

KEY TO KNOWN SPECIES OF DACUS (GYMNODACUS)

1. Crossveins r-m and m distinctly infuscated; costal band not continuous, interrupted in cell R_2 (Burma)..... *absonus* (Hering)
Crossveins not infuscated; costal band not interrupted 2
2. Mesonotum with a median yellow vitta
..... (Ceylon, Burma, India)..... *diversus* Coquillett
Mesonotum with just two yellow vittae 3
3. Thorax chiefly black. Exposed portion of female ovipositor not longer than the combined lengths of abdominal segments four and five 4
Thorax chiefly pale colored with no distinct black markings. Exposed ovipositor equal to the combined length of segments three to five (New Britain)..... *hastigerinus* n. sp.
4. Costal band broad, extending through most of cell R_3 . Abdomen with black bands across the bases of segments one to three; sides of abdomen otherwise yellow to rufous. Ovipositor (*in situ*) not as long as the fifth abdominal segment
..... (Australia)..... *calophylli* (Perkins and May)
Costal call narrow, very faint in cell R_3 and with a small apical spot developed. Abdomen black on the sides, with no basal bands on segments two and three. Ovipositor about equal to the combined lengths of segments four and five
..... (Africa)..... *mesomelas* Bezzi

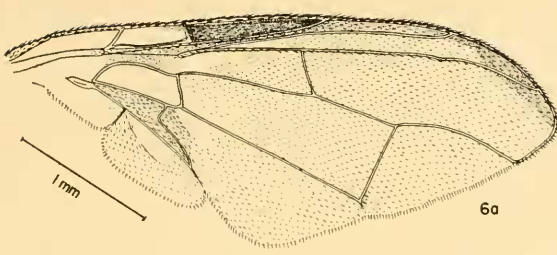
Dacus (Gymnodacus) absonus (Hering)

Asiadaeus absonus Hering, 1941, Arkiv för Zoologi 33B(11):1-2, fig. 1.

Dacus (Gymnodacus) absonus (Hering), Hardy, 1951. Pacific Science 5(2):129.

This species is readily distinguished from all known members of this subgenus by the infuscated crossveins in the wing and by the discontinuous costal band; the band is broadly interrupted in cell R_2 . It has been adequately described and figured by Hering. Length of wing, 5.0 mm.

Fig. 6, *D. (Gymnodacus) diversus* Coquillett, a, wing of male; b, female ovipositor, extended; c, apex of piercer; fig. 7, *D. (Gymnodacus) hastigerinus*, new species, a, wing of female; b, extended female ovipositor; c, apex of piercer; fig. 8, *D. (Gymnodacus) mesomelas* Bezzi, a, wing. Drawings by Marian S. Adachi.

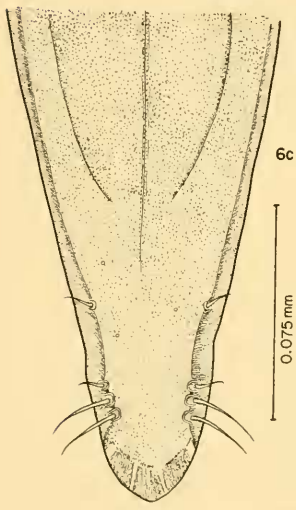


6a

D. diversus

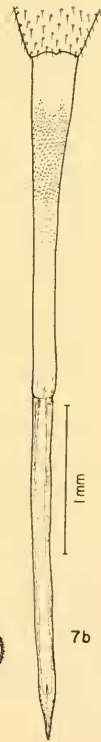


6b

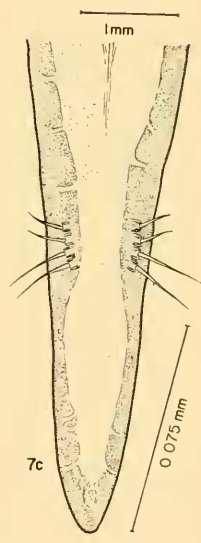


6c

0.075 mm

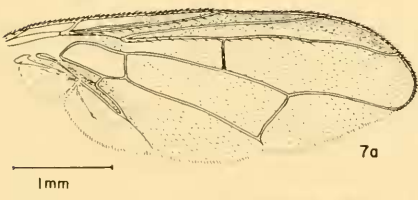


7b



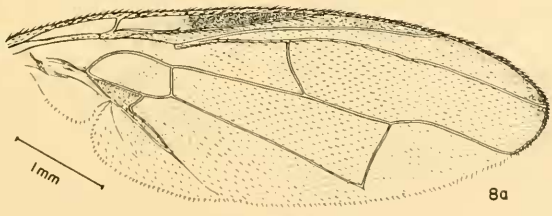
7c

D. hastigerinus



7a

1 mm



8a

D. mesomelas

1 mm

Type locality.—Kambaiti, Burma; host unknown.
 Type in the Naturhistoriska Riksmuseum, Stockholm.
 I have not seen this species.

Dacus (Gymnodacus) calophylli (Perkins and May)

Asiadacus calophylli Perkins and May, 1949, Univ. Queensland. Dept. Biol. 2(14):16-18, fig. 8.

Dacus (Gymnodacus) calophylli (Perkins and May), Hardy, 1951. Pac. Sci. 5(2):130, figs. 6a-b.

This species appears to be rather closely related to *D. mesomelas* Bezzi, of Africa. It is best separated by the broad costal band in the wing; the coloration of the abdomen and by the very short ovipositor of the female as brought out in the key. The structure of the ovipositor, as described and figured by Hardy (1951, l.e.) will distinguish it from other members of the subgenus. *D. calophylli* has been adequately described and figured by Perkins and May and by Hardy (l.e.). Length: Body, 5.0-5.5 mm.; wings, 4.5-5.0 mm.

Type locality.—Cairns, Queensland.

Type at the University of Queensland.

This is a common species in the Cairns area, infesting the fruits of *Calophyllum inophyllum* Linn.

Dacus (Gymnodacus) diversus Coquillett, new combination

(Figs. 6a-c)

Dacus diversus Coquillett, 1904, Proc. Ent. Soc. Wash. 6:139.

This species is distinguished from all known species of *Gymnodacus* by having three postsutural, yellow vittae on the mesonotum and by the details given in the description below.

Male and female.—HEAD: The face of the male is clear yellow with no dark markings. The female has a brown to black transverse band across the lower portion of the face. The front has two pairs of inferior fronto-orbital bristles and one pair of superior fronto-orbitals. A distinct black spot is present at the base of each frontal bristle. The ocellar triangle is black. A transverse band of brown (sometimes slightly interrupted) extends across the vertex. The anterior one-third of the occiput is yellow, the hind portion is brown to black. The first two antennal segments are yellow, the third is tinged with brown. The third segment is about equal in length to the face. THORAX: Chiefly shining black in ground color, gray pollinose on the dorsum. The thorax is densely covered with fine gray to silvery pile. The yellow markings are as follows: The humeri, notopleura, mesonotal stripes, hypopleura, scutellum, and the three postsutural vittae. LEGS: Chiefly yellow, tinged with brown on the tibiae and on the apical subsegments of the tarsi. WINGS: The costal cells are hyaline and devoid of microtrichia. The costal band is rather narrow and does not extend into cell R_3 along the underside of vein R_3 ; the band expands slightly at the wing apex, fig. 6a. An indis-

inct spot of brown is present at the lower edge of the m crossvein. A very pronounced lobe is present at the apex of vein $Cu_1 + 1st A$ and the cubital streak is distinct. The free end of vein $Cu_1 + 1st A$ is about one-third as long as the narrowed portion of the cubital cell in the male. In the female this vein is about two-thirds as long as the narrowed portion of the cubital cell. ABDOMEN: The first tergum is rufous in the middle and black on the sides. Terga two to four have a broad black band across their bases and are yellow to rufous on their apices. The fifth tergum has a black spot on each antero-lateral margin, it is otherwise yellow to rufous. FEMALE OVIPOSITOR: Long and slender, fig. 6b, the exposed portion, *in situ*, is almost equal in length to the remainder of the abdomen. The basal segment is about three times longer than the fifth abdominal segment. The entire ovipositor, fig. 6b, is approximately 5.0 mm. long. The piercer is about 1.17 mm. long by about .16 mm. at its widest point. The opening of the oviduct is about .11 mm. from the apex of the piercer. The preapical setae are tiny and are scarcely discernible except at magnifications of 660 times; one pair of very small setae are displaced well behind the three distad pairs, fig. 6c. The setae are situated near the apex of the piercer (about .025 mm. measured from apical pair). The inversion membrane is 1.95 mm. long by .32 mm. at its widest point. The rasper extends to within .75 mm. of the base of the segment. The basal segment of the ovipositor is 1.82 mm. long by about 1.0 mm., measured across its anterior margin. The spiracles are situated .4 mm. from the base of the segment. Length: Body, 5.0-6.0 mm.; wings, 5.3-5.7 mm.

Type locality.—Colombo, Ceylon, and Bangalore, India.

Type in the United States National Museum.

This species has been recorded from numerous localities throughout India, Burma, and Ceylon. It infests a wide range of fruits ranging from citrus to cucurbits and is of considerable economic importance in some areas.

I have studied a large series of specimens from several localities in the United Province, reared from several species of cucurbitaceae.

Dacus (Gymnodacus) hastigerinus, new species

(Figs. 7a-c)

This species is more closely related to *D. calophylli* (Perkins and May) than to any other known member of this subgenus and is distinguished by the long, slender ovipositor of the female and by the predominantly pale coloration of the mesonotum in both sexes. In *D. hastigerinus* the exposed portion of the ovipositor, *in situ*, is approximately equal in length to the combined lengths of abdominal segments three to five. In *D. calophylli* it is scarcely over half as long as the fifth segment.

Male.—HEAD: The front is slightly over two times longer than wide.

The front is all yellowish except for a brownish red median discoloration on the tumescence. Two pairs of inferior fronto-orbitals and one pair of superior fronto-orbital bristles are present. The head bristles are black, with a faint brownish tinge in the color of those on the vertex and occiput. The black facial spots are moderately large and are quadrate to oval in shape. The antennae are all yellow to rufous, the third segment is three and one-half times longer than wide and is about equal in length to the face. THORAX: Predominantly pale colored, with no distinct black markings. The mesonotum has a pair of narrow, submedian, brownish colored vittae, extending anteriorly from the scutellum, just outside the precutellar bristles to a point, about opposite the middle of the humeri. In one specimen on hand these vittae are blackish. A brownish colored spot is also present on the dorsum behind each humerus. The yellow vittae on the mesonotum do not extend to the posterior supraalar bristles. The scutellum is entirely yellow, there is no discernible brown or black area at its base. The halteres are all yellow. The metanotum is largely brown, the median portion is rufous. LEGS: Entirely yellow. The apical spurs of the middle tibiae are nearly equal to twice the width of the tibiae. WINGS: The first and second costal cells are very faintly yellowish fumose and are devoid of microtrichia except in the apical half of the second portion. The costal band extends below vein R_3 , one-half to three-fourths the distance through cell R_3 . At the wing apex the band extends one-third to one-half the distance between the tips of veins $R_4 + 5$ and $M_1 + 2$. Vein $M_3 + 4$ ends just beyond the junction with the m crossvein. The cubital streak is comparatively narrow and is pale yellow-brown fumose; the streak occupies the basal portion of cell M_4 to about the hind edge of the m crossvein. The r-m crossvein is straight and is situated at about the apical three-fifths of the discal cell, fig. 7a. The narrowed portion of the cubital cell is nearly equal in length to that portion of the wing from the apex of the cubital cell to the margin. ABDOMEN: Chiefly yellow to rufous except that the first tergum is largely brown to blackish; the second tergum has a brown to blackish transverse band across the median portion and the third tergum has a narrow brown to black basal band. A faint to distinct brown to blackish colored vitta extends longitudinally down the middle of terga three and four, and extends a short distance onto the anterior part of tergum five. Length: body, 5.0 mm.; wings, 4.6 mm.

Female.—The narrowed portion of the cubital cell is equal in length to that section from the apex of the cell to the wing margin. The sides of abdominal terga three to five are brown and no distinct median vitta is present. OVIPOSITOR: Long and slender, fig. 7b, conspicuously extending beyond the apex of the abdomen. *In situ*, the extruded ovipositor is about equal to the combined lengths of abdominal segments three to five. The extended ovipositor is about 6.5 mm. long. The piercer measures approximately 2.26 mm. in length by .13 mm. wide. The piercer is straight sided, tapering abruptly just beyond the opening of the oviduct to a sharp point at the tip, fig. 7c. The opening of the oviduct ex-

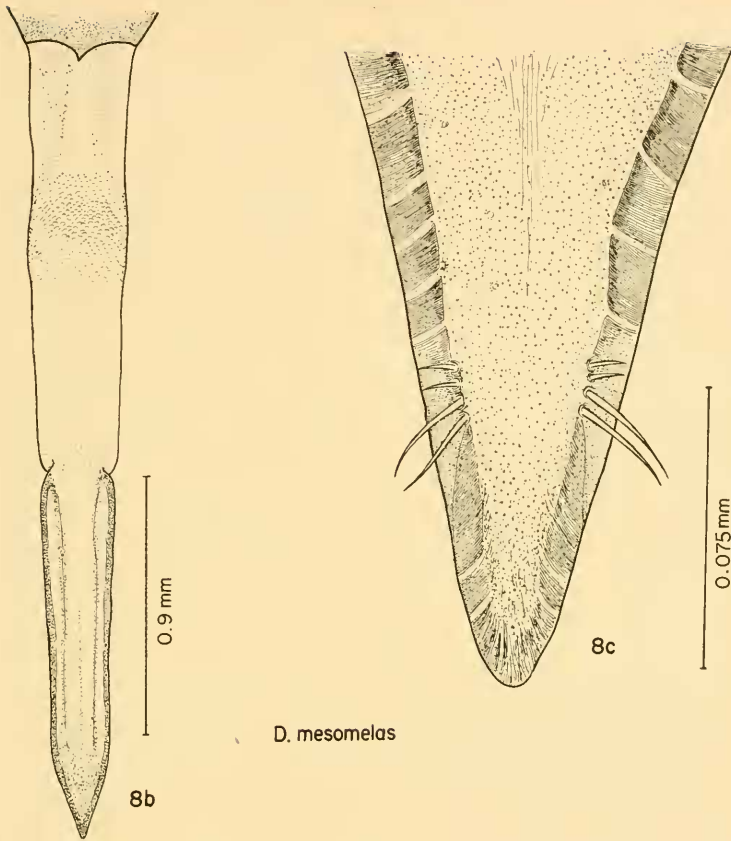


Fig. 8b, female ovipositor, full length; c, apex of female ovipositor. Drawings by Marian S. Adachi.

tends to within .26 mm. of the apex. The setae are located about .08 mm. from the apex of the piercer. The inversion membrane is about 2.55 mm. long by .38 mm. at its broadest point. The rasper extends to within about .56 mm. of the base of the inversion membrane. The basal segment is about 1.7 mm. long by 1.3 mm. at its widest point. Length: Body, 5.5-5.8 mm.; wings, 4.5 mm.

Types.—Holotype ♂, allotype ♀, and three paratypes, two males and one female; Keravat, New Britain, ex fruit of *Spondias* sp., Oct., 1949 (N. L. H. Krauss).

Type and allotype in the United States National Museum. One paratype each in the B. P. Bishop Museum, Hawaii Board of Agriculture and Forestry, and the University of Hawaii.

Dacus (Gymnodacus) mesomelas Bezzi

(Figs. Sa-c)

Dacus mesomelas Bezzi. 1908. Ann. Soc. Ent. Belg. 52:386.*Dacus (Chactodacus) aethiopicus* Munro. 1933. Amer. Mus. Novit. 597-1-3.

This species is similar, in many respects, to *D. calophylli* (Perkins and May). It is readily differentiated by the narrow, poorly developed costal band, fig. 8a; by the lack of transverse black bands on the abdomen and by the more elongate female ovipositor, fig. 8b.

Female.—HEAD: The facial spots are large and round. Front unspotted and nearly two times longer than wide. Two pairs of inferior fronto-orbital bristles and one pair of superior fronto-orbitals are present. THORAX: The mesonotum is chiefly brown to black, with a pair of yellow lateral vittae and pair of broad, submedian, gray pollinose vittae extending the full length of the mesonotum; the area between the two gray vittae is subshining brown to black. The scutellum is yellow except for a slight brownish discoloration at the apex. LEGS: The femora are yellow to rufous. The posterior tibiae are brown to blackish and the other pairs are slightly discolored with brown. The tarsi are predominantly yellow. WINGS: The first two costal cells are hyaline, devoid of microtrichia except in the apical half of the second section. The stigma is dark brown fumose. The costal band is very narrow and poorly developed; it is light brown in cell R_2 and fills all of this cell but does not extend below vein R_3 . Cell R_3 is very slightly fumose along the costal margin, the costal band is often interrupted through much of this cell. A light brown spot is developed at the apex of the cell R_3 , extending into the upper portion of cell R_5 , fig. 8a. The r-m crossvein is strongly oblique and is situated at the apical third of cell 1st M_2 . The cubital streak is faint and is confined to the cubital cell. The narrowed portion of the cubital cell extend about half way to the wing margin in both sexes. ABDOMEN: A large black spot is developed on each side of terga one to four and a small black spot is present on the anterior lateral margins of tergum five. A narrow black vitta extends the entire length of terga one to five down the middle. OVIPOSITOR: The visible ovipositor (*in situ*) is about equal in length to abdominal segments four and five. The extended ovipositor is about 4.0 mm. in length. The piercer is moderately tapered at its apex and has two pairs of rather large (apical) setae and two pairs of minute setae, fig. 8c. These are preapical in position and are situated about .07 mm. from the apex. The opening of the oviduct is located .13 mm. from the apex of the piercer. The invasion membrane is 1.58 mm. long by .31 mm. wide; the rasper extends to within .42 mm. of the base of the segment. The basal segment is 1.13 mm. long by 1.0 mm. wide and the spiracles are .31 mm. from the base of the segment. Length: Body, 5.5-7.9 mm.; wings, 5.0-6.8 mm.

Type locality.—Kinchassa. Host not given. (Dr. A. Collart

informs me in correspondence that the larvae infest the fruits of *Parinarium*.)

Type in the Institut Royal des Sciences Naturelles de Belgique.

Specimens at hand are from Amani, Tanganyika, Mar. 1936, "big palmate leaved tree" (F. A. Bianchi).

NOTES AND SYNONYMS IN CHRYSOMELIDAE

(COLEOPTERA)

BY F. MONRÓS, *Universidad Nacional de Tucumán, Argentina*

While studying the chrysomelid collection of the U. S. National Museum in Washington, I have come across some interesting species that are considered in the present paper. I want to express my thanks to the John Simon Guggenheim Memorial Foundation, that has made my stay in the United States possible, and to the authorities of the U. S. National Museum for the facilities they have made available to me.

The names preceded by an asterisk (*) designate those species of which I have seen the types in the U.S.N.M. collection.

CLYTRINAE

Anomoca laticlavata (Forster) (Nov. Spec. Ins., 1771, p. 27)

* *A. laticlavata* v. *kansana* Schaeffer. (Journ. N. Y. Ent. Soc. 41, 1933, p. 310, 314, 315). This represents nothing but a yellow color-form of *laticlavata* and seems to have no racial significance. (New synonymy.)

* *A. crassicornis* Schaeffer. (*l.c.*, p. 310, 311, 313)—This differs from *laticlavata* only in the color pattern and cannot be specifically separated. (New Synonymy.) The following names refer to forms which, in addition to being synonyms of *laticlavata*, are plainly the same as the color form which was named *crassicornis*:

* *A. laticlavata* v. *floridana* Schaeffer. (*l.c.*, p. 310, 311, 315, 316). (New synonymy.)

* *A. angustata* Schaeffer. (*l.c.*, p. 310, 316, 317). (New synonymy.)

Megalostomis (*Minturnia*) *dimidiata* Lacordaire. (Mon. Phyt. II, 1848, p. 526).

= *Coscinoptera major* Crotch (Trans. Amer. Ent. Soc. 19, 1892, p. 11). (New synonymy.)

Babia quadriguttata (Olivier) (Enc. méth. Ins. VI, 1791, p. 37).

The following names represent nothing but color variations of this species, and all degrees of intermediate forms can be found between them and the typical *quadriguttata*:

* *B. quadriguttata* v. *tenuis* Schaeffer. (Journ. N. Y. Ent. Soc. 41, 1933, p. 319, 320). (New synonymy.)